

**To:** Flowers, Lynn[Flowers.Lynn@epa.gov]  
**Cc:** Bussard, David[Bussard.David@epa.gov]  
**From:** Phillips, Linda  
**Sent:** Wed 8/12/2015 7:55:01 PM  
**Subject:** RE: Screening levels for recreational receptors at the Gold King Mine Site  
Gold King Mine draft calcs 8-12-15.xlsx

Hi Lynn – As you requested, I did some calculations to estimate screening levels based on dermal exposure to sediments and water for children and adults. I used the same toxicity values as those used in the Region 8 memo (I also confirmed these in IRIS and the Region 3 RSL Table). I also used Region 8's assumptions for exposure frequency and duration, and the same body weights as Region 8. I consulted RAGS Part E (dermal guidance) and the Exposure Factors Handbook for soil adherence and surface area recommendations. I also obtained permeability coefficients and absorption factors from RAGS Part E. Finally, I assumed contact would occur over 2 hours/event (there is no default for this; it is an assumption based on professional judgement).

The attached spreadsheet provides the calculations for the list of chemicals in the Region 8 memo from Susan Griffin that you sent to me. The estimated concentrations for sediment and water are at the bottom of the spreadsheet. Also, for comparison, the Region 8 values which are based on sediment and water ingestion rather than dermal contact, are provided at the bottom of the spreadsheet in bold. Values highlighted in RED are those dermal concentrations that are LOWER than the Region 8 ingestion values. Note that I could only calculate values for contact with sediment for 2 of the organics on the list because I they were the only 2 for which I was able to locate dermal absorption fractions in EPA guidance (e.g., RAGS E). Finally, I think it might be helpful to have someone else in my group do some QA/QC of my spreadsheet (It is always harder to QA/QC your own work; I will ask someone to do it tomorrow morning). Please let me know if you have questions.

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**From:** Flowers, Lynn  
**Sent:** Wednesday, August 12, 2015 10:04 AM  
**To:** Phillips, Linda  
**Subject:** FW: Screening levels for recreational receptors at the Gold King Mine Site

Lynn Flowers, PhD, DABT

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**From:** Koglin, Eric  
**Sent:** Tuesday, August 11, 2015 7:36 PM  
**To:** Flowers, Lynn; Cogliano, Vincent; Shannon, Teresa  
**Cc:** Sayles, Gregory; Garrahan, Kevin; Olden, Kenneth; Ross, Mary  
**Subject:** Screening levels for recreational receptors at the Gold King Mine Site

All

I'm helping to coordinate ORD's reachback support to the Gold King Mine release. The Regions are pulling together a lot of data and information. The attached is a draft document developed by Region 8 that provides screening levels that they want to use for recreational receptors for the Animas and San Juan River users.

I would appreciate it if you could take a quick look at the information in the attached to see if anything jumps out at you. ORD did not receive this document until after review comments were due at 1900 EST today, but I think it's important for our ORD experts to take a look just in case something was missed.

Hopefully you'll be able to find a few minutes to look this over first thing in your morning or if you think there is someone else that should be contacted.

Please contact Kevin Garrahan at 202-250-8924 (ORD Desk in the EOC) or me as soon as you can tomorrow.

I apologize for the rush.

Eric

Eric Koglin

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